Check List the journal of biodiversity data

NOTES ON GEOGRAPHIC DISTRIBUTION

Check List 12(5): 1955, 5 September 2016 doi: http://dx.doi.org/10.15560/12.5.1955
ISSN 1809-127X © 2016 Check List and Authors

First Brazilian record of *Ammophila hevans* Menke, 2004 (Hymenoptera: Sphecidae)

Bhrenno M. Trad[1*], **Sandor C. Buys**[2] and **Rogerio Silvestre**[1]

1 Universidade Federal da Grande Dourados (UFGD), Faculdade de Ciências Biológicas e Ambientais (FCBA), Programa de Pós-Graduação em Entomologia e Conservação da Biodiversidade (PPG-ECB); Laboratório de Ecologia de Hymenoptera (HECOLAB), Rod. Dourados-Itahum, Km 12, Cidade Universitária, C.P. 328, CEP: 79.804-970, Dourados, MS, Brazil
2 Instituto Oswaldo Cruz, Fundação Oswaldo Cruz (FIOCRUZ), Laboratório de Biodiversidade Entomológica, Av. Brasil 4365, Pavilhão Mourisco, sala 214, CEP: 21040-360, Manguinhos, Rio de Janeiro, RJ, Brazil
* Corresponding author. E-mail: crabrowasp@gmail.com

Abstract: The Thread-waisted Wasp, *Ammophila hevans* Menke, 2004, is reported from the Brazilian Cerrado, collected in a transitional area between Savannah and Semidecidual Forest formations in Dourados municipality, Mato Grosso Sul state, Brazil. The species is illustrated for the first time, and a distribution map is provided.

Key words: Ammophilini; Thread-waisted Wasp; Cerrado biogeographic province; Spheciformes; new record; biogeographical crossroads; Mato Grosso do Sul

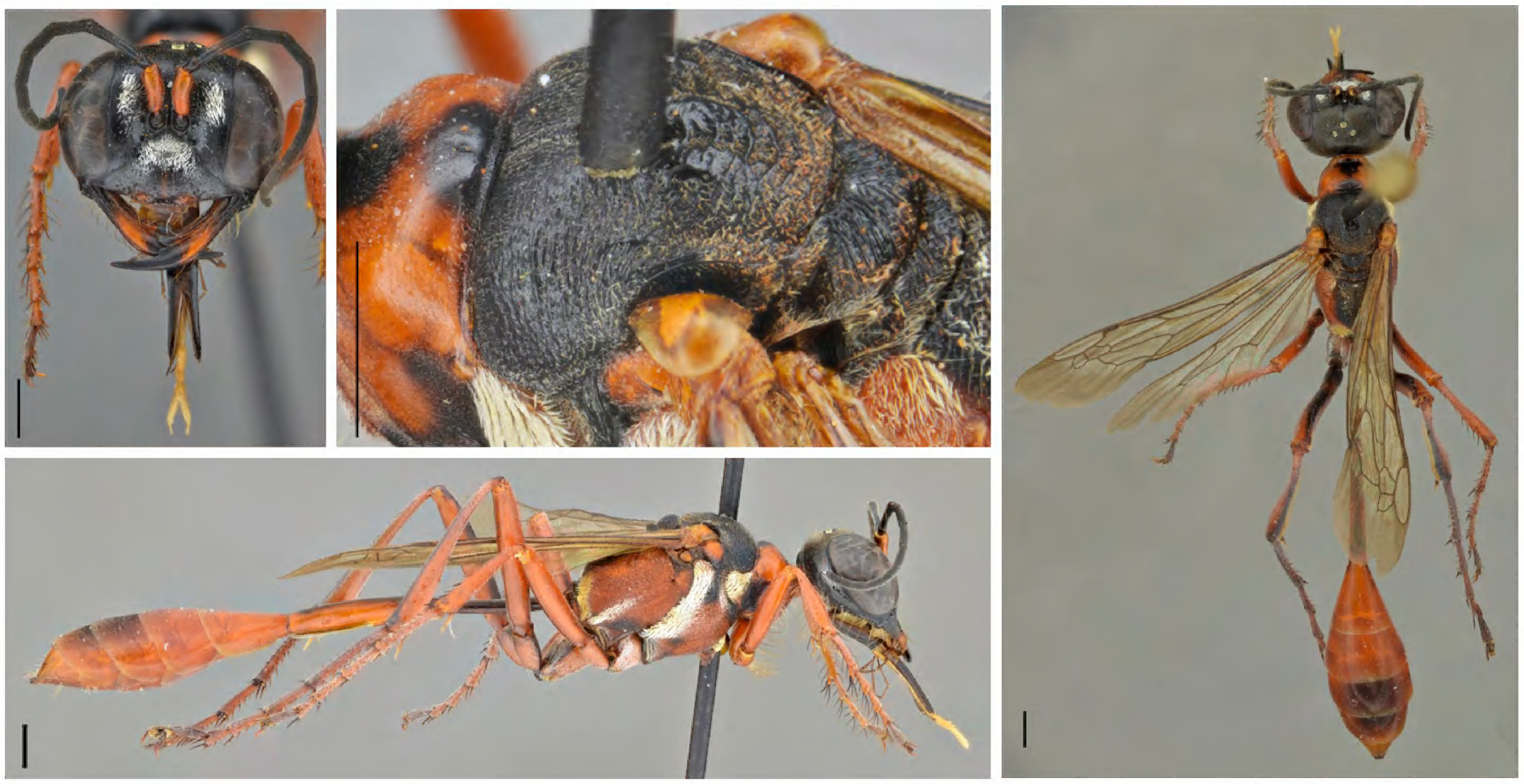
Ammophila Kirby, 1798 is a genus of caterpillar-hunting solitary wasps, worldwide distributed (Bohart and Menke 1976), which has been subject of classical behavioral studies (e.g., Peckham and Peckham 1898; Baerends 1941; Evans 1959, 1965; Brockmann 1985). Although there are 234 described species in this genus (Pulawski 2016), only eight *Ammophila* spp. are recorded from South America (Amarante 2002, 2005; Menke 2004), most from Andean highlands, with just *A. gracilis* Lepeletier de Saint Fargeau, 1845 as the only species across most of the South American lowlands. *Ammophila hevans* Menke, 2004, originally described from Chacoan Bolivia, Paraguay and Argentina, is one of the five South American red-legged species, and the only one found out the Andes (Menke 2004). This paper provides the first record of this species from Brazil and the Cerrado biogeographic province.

Specimens of *Ammophila hevans* were collected in the Lagoa Grande rural settlement (21°59′37″ S, 055°19′25″ W; 429 m above sea level), in Itahum district of Dourados municipality, state of Mato Grosso do Sul, Brazil. According to Morrone (2014), this area is located on a transition border between the Cerrado and Parana Forest provinces (Chacoan and Parana dominion). According to Köppen's (1936) classification, the climate of this region is transitional between the Tropical monsoon zone (*Am*) and the Humid subtropical zone, with hot summer (*Cfa*) (Alvares et al. 2013). In the study area, the predominant soil type is dystrophic red latosol and quartzarenic neosol (Daniel et al. 2008).

On 6 February 2014, around noon, on edge of an unpaved road, a female was captured while digging her nest in bare sandy soil, and a male was caught on flowers. On 23 May 2015, a female was collected visiting flowers on edge of the same road. Specimens were identified using the key provided by Menke (2004). Voucher specimens were pinned and deposited in the Hymenoptera collection in Museu da Biodiversidade from Universidade Federal da Grande Dourados (MuBio/UFGD), with numbers: Hym-000020-S, Hym-000611-S and Hym-000612-S.

Our material agrees perfectly with the description of *A. hevans* by Menke (2004), who pointed out the following diagnostic features, illustrated here for the first time (Figures 1–7): (1) extensively red legs in both sexes, (2) absence of erect setae on the female thorax, (3) mesopleura with a broad band of appressed silver setae along mesopleural sulcus from midcoxa to the top of the hypoepimeral area, (4) metapleura with a band of appressed silver-gold setae along the metapleural sulcus, which extends from the base of the hindcoxa up to almost the upper pleural pit, (5) extensive reddish areas on the female thorax, and (6) scutum transversely rugose in both sexes.

Ammophila hevans was described from Bolivia and recorded from Argentina and Paraguay (Menke 2004). We now add Brazil to the distribution. The species is distributed in the Rondonian and Chacoan provinces (*sensu* Morrone 2014). The geographical distribution of



Figures 1–4. *Ammophila hevans* Menke, 2004 ♀ (Brazil: Mato Grosso Sul, Dourados, 21°59′37″ S, 055°19′25″ W; 429 m, 23.v.2015, F.V.O. Lima et al col., Hym-00611-S) **1.** Frontal view. **2.** Scutum. **3.** Lateral habitus. **4.** Dorsal view. Scale bars = 1 mm.

Figures 5–7. *Ammophila hevans* Menke, 2004 ♂ (Brazil: Mato Grosso Sul, Dourados, 21°59′37″ S, 055°19′25″ W; 429 m, 06.ii.2014, B.M. Trad col., Hym-00020-S). **5.** Frontal view. **6.** Dorsal view. **7.** Lateral habitus.

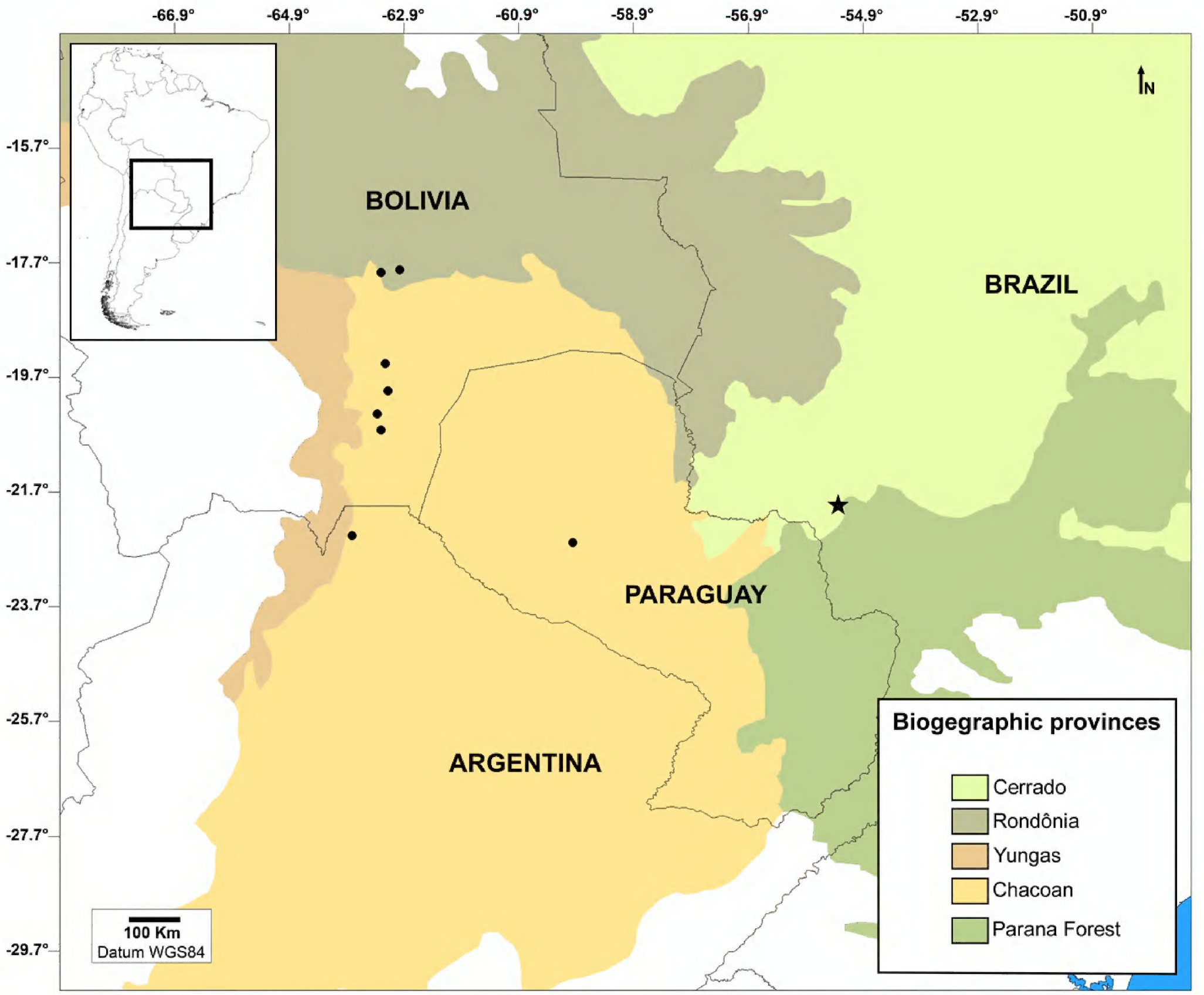


Figure 8. Distribution map of *Ammophila hevans* Menke, 2004 in South America with the biogeographic provinces *sensu* Morrone (2014). (●) Menke´s (2004) records; (★) New record from Cerrado province.

this species is now expanded to the Cerrado province in the Brazilian Midwest (Figure 8).

The presence of *A. hevans* in this biotic transitional area has fundamental importance for elucidate the evolutionary history of the group, and emphasize the need for the conservation of natural habitats in Dourados region. According to Pott and Pott (2003) there are no protected conservation areas in Dourados region. Spector (2002) commented about the importance of conservation of biogeographical crossroads, a factor barely considered and usually set aside when choosing areas for conservation.

ACKNOWLEDGEMENTS

We thank Arnold S. Menke for reviewing this manuscript, the residents of Lagoa Grande rural settlement, especially to Luciana Pogliesi Fernandes family, and Dr. Rhainer Guillermo-Ferreira, Dr. Felipe V.O. Lima, and Vinícius M. Lopez for their assistance in the field. Dr. Bolívar R. Garcete Barrett and anonymous reviewers helped to improve the manuscript. CAPES supported B.M.T.

LITERATURE CITED

Amarante, S.T.P. 2002. A synonymic catalog of the Neotropical Crabronidae and Sphecidae (Hymenoptera: Apoidea). Arquivos de Zoologia 37(1): 1–139. http://www.revistas.usp.br/azmz/article/view/12022/13799

Amarante, S.T.P. 2005. Addendum and corrections to a synonymic catalog of the Neotropical Crabronidae e Sphecidae. Papéis Avulsos de Zoologia 45: 1–18. doi: 10.1590/S0031-10492005000100001

Alvares, C.A., J.L. Stape, P.C. Sentelhas, J.L.M Gonçalves and G. Sparovek. 2013. Köppen's climate classification map for Brazil. Meteorologische Zeitschrift 22(6): 711–728. doi: 10.1127/0941-2948/2013/0507

Baerends G.P. 1941. Fortpflanzungsverhalten und Orientierung der Grabwespe *Ammophila campestris*. Tijdschrift Voor Entomologie 84: 68–275. http://biodiversitylibrary.org/page/28383575

Bohart, R.M. and A.S. Menke. 1976. Sphecidae wasps of the world. A generic revision. Berkley: University of California Press. xxx + 695 pp.

Brockmann, H.J. 1985. Tool use in digger wasps (Hymenoptera: Sphecinae). Psyche 92(2–3): 309–329. doi: 10.1155/1985/73184

Daniel, O., A.C.T. Vitorino, C.O. Veronese and L.S. Queiroz. 2008. Avaliação do uso da terra por meio de imagens Ikonos: o caso do Assentamento Fazenda Nova da Lagoa Grande, MS. Revista Brasileira de Agroecologia 3: 14–18. http://www.aba-agroecologia.org.br/revistas/index.php/rbagroecologia/article/download/7586/5462

Evans, H.E. 1959. Observations on the nesting behavior of digger wasps of the genus *Ammophila*. The American Midland Naturalist 62(2): 449–473. doi: 10.2307/2422538

Evans, H.E. 1965. Simultaneous care of more than one nest by *Ammophila azteca* Cameron (Hymenoptera, Sphecidae). Psyche 72(1): 8–23. doi: 10.1155/1965/71271

Köppen, W. 1936. Das geographische System der Klimate; pp. 1–44, in: W. Köppen and R. Geiger (eds.). Handbuch der Klimatologie. Berlin: Gebrüder Bornträger. http://koeppen-geiger.vu-wien.ac.at/pdf/Koppen_1936.pdf

Menke, A.S. 2004. *Ammophila hevans* Menke, a new species from southern South America with taxonomic notes on similar species (Hymenoptera: Apoidea: Sphecidae). Journal of the Kansas Entomological Society 77(4): 765–773. doi: 10.2317/E-16.1

Morrone, J.J. 2014. Biogeographical regionalization of the Neotropical region. Zootaxa 3782: 1–110. doi: 10.11646/zootaxa.3782.1.1

Peckham, G. W. and E.G. Peckham. 1898. On the instincts and habits of solitary wasps. Wisconsin Geological and Natural History Survey, Bulletin 2 (Scientific Series 1): i–iv, 1–245. doi: 10.5962/bhl.title.26182

Pott, A. and V.J. Pott. 2003. Espécies de fragmentos florestais em Mato Grosso do Sul; pp. 26–52, in: R.B. Costa, (org.). Fragmentação florestal e alternativas de desenvolvimento rural na região Centro-Oeste. Campo Grande: Universidade Católica Dom Bosco.

Pulawski, W.J. 2016. Catalog of sensu Sphecidae (= Apoidea excluding Apidae). Accessed at http://researcharchive.calacademy.org/research/entomology/entomology_resources/hymenoptera/sphecidae/genera/Ammophila.pdf, 9 February 2016.

Spector, S. 2002. Biogeographic crossroads as priority areas for biodiversity conservation. Conservation Biology 16(6): 1480–1487. doi: 10.1046/j.1523-1739.2002.00573.x

Author contributions: BMT collected data in the field and made the figures; RS provided laboratory support; BMT and SCB identified the specimens; all authors wrote the text.

Received: 10 February 2016
Accepted: 20 July 2016
Academic editor: Aline Barcellos